$$\frac{\delta S_{DBI}}{\delta A^{\mu}(x)} = \int d^D y \; \delta(x-y) \left(\partial_\rho F_{\mu\lambda} + \partial_\lambda F_{\mu\rho}\right)(x)$$

$$\cdot \int d^D z \; e^{\frac{1}{4} \mathrm{tr} \ln (1-M^2)(z)} \cdot \frac{1}{4} \underbrace{\frac{\delta}{\delta (M^2)_{\rho\lambda}(y)} \mathrm{tr} \ln \left(1 - M^2(z)\right)}$$

$$= \delta(y-z) \; \mathrm{tr}\left[\frac{\delta}{\delta (M^2)_{\rho\lambda}(y)} \ln (1-M^2)(z)\right]$$

$$= \mathrm{tr}\left[\frac{\delta}{\delta (M^2)_{\rho\lambda}} \ln \left((1-M^2)^{\beta}{}_{\alpha}\right)\right] \qquad M^{\alpha}{}_{\beta} = \eta^{\alpha\gamma} F_{\gamma\beta}$$

$$= \mathrm{tr}\left[(1-M^2)^{-1\,\beta}{}_{(\alpha)} \frac{\delta}{\delta (M^2)_{\rho\lambda}} (1-M^2)^{(\gamma)}{}_{\beta}\right]$$

$$= \mathrm{tr}\left[(1-M^2)^{-1\,\beta}{}_{(\alpha)} \frac{\delta}{\delta (M^2)_{\rho\lambda}} (1-M^2)_{\beta\sigma} \, \eta^{\sigma(\gamma)}\right]$$

$$= \mathrm{tr}\left[(1-M^2)^{-1\,\beta}{}_{(\alpha)} \, \delta_{\rho\beta} \, \delta_{\lambda\sigma} \, \eta^{\sigma(\gamma)}\right]$$

$$= (1-M^2)^{-1\,\beta}{}_{\alpha} \, \delta_{\rho\beta} \, \delta_{\lambda\sigma} \, \eta^{\sigma\alpha}$$

$$= (1-M^2)^{-1\,\rho}{}_{\alpha} \, \eta^{\lambda\alpha}$$

$$= (1-M^2)^{-1}{}_{\alpha\beta} \, \eta^{\beta\rho} \, \eta^{\lambda\alpha}$$

$$\Rightarrow \frac{\delta S_{DBI}}{\delta A^{\mu}(x)} \sim \left(\partial_\rho F_{\mu\lambda} + \partial_\lambda F_{\mu\rho}\right) (1-M^2)^{-1}{}_{\alpha\beta} \, \eta^{\rho\beta} \eta^{\lambda\alpha}$$

$$\sim (1-M^2)^{-1\,\lambda\rho} \left(\partial_\rho F_{\mu\lambda} + \partial_\lambda F_{\mu\rho}\right)$$

$$\sim (1-M^2)^{-1}{}_{\underbrace{\lambda\rho}} \left(\partial^\rho F^{\lambda}{}_{\mu} + \partial^\lambda F^{\rho}{}_{\mu}\right)$$

symmetrisch wegen
Symmetrie von M^2

$$\sim (1-M^2)^{-1}{}_{\lambda\rho} \left(\partial^\rho F^{\lambda}{}_{\mu}\right)$$

$$\sim \left(1 - 4\pi^2 \alpha'^2 F^2\right)^{-1}{}_{\rho}{}^{\lambda} \left(\partial^\rho F_{\lambda\mu}\right)$$

$$= \partial^\rho F_{\lambda\mu} \left(1 + 4\pi^2 \alpha'^2 F_\rho{}^\nu F_\nu{}^\lambda + 8\pi^4 \alpha'^4 F_\rho{}^\nu F_\nu{}^\eta F_\eta{}^\xi F_\xi{}^\lambda \ldots\right)$$

geom. Reihe